

IN THE CLAIMS

This listing of the claim will replace all prior versions and listings of claim in the present application.

Listing of Claims

Please delete on page 29, "WHAT WE CLAIMED:" and insert --WHAT WE CLAIMED IS:--

1. (currently amended) A cache control method in a computer system that includes a storage device, a node device including a cache disk module for caching, and a client device connected mutually via a network, the cache control method comprising:

relating data processed in the computer system with attribute data which configures a caching operation of the cache disk module that caches the processed data on the network; and

mediating the processed data between the storage device and the client device via the network without the caching operation of the cache disk module when the attribute data to prohibit the caching operation~~in which a storage device, a node device including a disk device for cache and clients are connected together, for controlling the cache in the disk device, comprising the steps of:~~

~~in the storage device or the client, sending attribute information of data to the node device, the data being relayed by the node device, the attribute information indicating as to whether or not the data is allowed to be cached in the disk device;~~

~~in the node device, judging as to whether or not the data to be relayed is allowed to be cached in the disk device, based on the attribute information; and~~

~~relaying the data, which has been judged as non-cacheable, without process of the cache in the disk device.~~

2. (currently amended) The cache control method according to claim 1, further comprising encrypting the processed data when the processed data is cached in the cache disk module the steps of:

~~in the node device, encrypting the data to be relayed on the node device and writing the encrypted data in, the disk device; and~~

~~decoding the data that is read out from the disk device and sending the decoded data to the storage device or the client, in response to a read out command of the data, which is stored in the disk device.~~

3. (currently amended) A node device that includes a cache disk module for caching, and is connected to a storage device and a client device via a network, the node device ~~disk device for cache and relays transmission and receipt of data between a storage device and clients, comprising:~~

an obtaining unit that obtains attribute data related with data processed by the client device, wherein the attribute data configures a caching operation of the cache disk module that caches the processed data on the network; and

a mediating unit that mediates the processed data between the storage device and the client device via the network without the caching operation of the cache disk module when the attribute data prohibits the caching

~~operation~~attribute information input module that inputs attribute information of the data to be relayed, which indicates as to whether or not the data is allowed to be cached in the disk device;

a judgment module that judges as to whether or not the data to be relayed is allowed to be cached in the disk device, based on the attribute information; and

a cache control module that relays the data, which has been judged as non-cacheable, without process of the cache in the disk device.

4. (currently amended)A node device according to claim 3, further comprising:

a volatile memory for the ~~caching~~cache, wherein the mediation unit mediates the processed data between the storage device and the client device via the network, by primarily using the volatile memory and secondarily using the cache disk modules~~cache control module comprises: a memory control module that caches the data in the volatile memory regardless of the data attribute, cacheable or non-cacheable; and~~

a transfer control module that migrates the data from the volatile memory to the disk device except for the data, which has been judged as non-cacheable, when a predetermined condition for the migration is met.

5. (currently amended)A node device according to claim 4, further comprising:

an encryption unit that encrypts the data cached in the cache disk module~~module that encrypts the data to be relayed and writing the encrypted data in the disk device; and~~

~~a decoding module that decodes the data that is read out from the disk device and sends the decoded data to the storage device or the client, in response to a read out command of the data, which is stored in the disk device.~~

6. (currently amended) The node device according to claim 5, further comprising:

an encryption obtaining unit that obtains encryption attribute data related with the processed data, wherein the encryption attribute data configures an encrypting operation that encrypts the data cached in the cache disk module; and

an encryption unit that encrypts the data cached in the cache disk module when the encryption attribute data requires the encrypting operation~~an attribute information input module that inputs attribute information of the data to be relayed, which indicates as to whether or not the data is required to be encrypted;~~

~~a judgment module that judges as to whether or not the data to be relayed is required to be encrypted, based on the attribute information; and~~

~~a cache control module that caches the data, which has been judged to require the encryption, employing the encryption module and the decode module.~~

7. (currently amended) A node device according to claim 5, further comprising:

a volatile memory for storing key data used for generating the encrypted data management module that receives key data, which is used for the encryption and the decoding of the data, from the storage device and manages the key data in the volatile memory.

8. (currently amended) A node device according to claim 73, wherein the attribute data is included in the processed data, and the obtaining unit obtains the attribute data from the processed data information is input in association with the data during the relay of the data.

9. (currently amended) A node device according to claim 73, wherein the attribute data is associated with data storage block of the storage device for storing the processed data, and the obtaining unit obtains the associated attribute data from the storage device via the network in advance of mediation by the mediation unit information input module previously acquires and manages association between respective data storage blocks and the attribute information.

10. (currently amended) A node device according to claim 73, wherein the attribute data is included in error data that notifies occurrence of an error in the client device, and the obtaining unit obtains the attribute data from the error data information notifies occurrence of an error in the client.

11. (currently amended)A storage device that is connected via a network to a client device, and a node device including a cache disk module for caching the storage ~~provides a client with data via a node device including a disk device;~~ comprising:

a storage unit for storing data processed by the client device, wherein the processed data is mediated between the client device and the storage device via the network;

a relation unit that relates the processed data with attribute data which configures a caching operation of the cache disk module that caches the processed data on the network; and

a notification unit that notifies the node device of the attribute data related with the processed data

~~an attribute information management module that manages attribute information of the data, which indicates as to whether or not the data is allowed to be cached in the disk device, or whether or not the data is required to be encrypted when being written in the disk device; and~~

~~an attribute information notification module that notifies the node device of the attribute information.~~

12. (currently amended)A storage device according to claim 11, wherein the relation unit comprises:

an addition module that adds the attribute data to the processed data, and the added attribute data is mediated together with the processed data~~attribute information notification module notifies the attribute information in association with the data when the data is provided.~~

13. (currently amended) A storage device according to claim 11, wherein the attribute data is associated with data storage block of the storage unit, and the notification unit notifies the node device of the associated attribute data in advance of mediation of the processed data information notification module notifies the node device of association between respective data storage blocks and the attribute information prior to the supply of the data.

14. (currently amended) A storage device according to claim 11, wherein the storage device further comprises:

a key data management unit that manages key data used for encrypting the data cached in the cache disk module; and

a key notification module that notifies the node device of the managed key data, which is connected with a plurality of node devices that are capable of encryption of the data when writing the data in the disk device, the storage device further comprising:

a condition judgment module that judges as to whether or not a predetermined condition for sending key data to any one of the plurality of node devices is met, the key data being used for the encryption; and

a key data transmission module that transmits the key data to the node device.

Claims 15-18 (canceled).

19. (currently amended) A computer readable recording medium in which a computer program is recorded, the computer program causing a computer to control operations of a node device that includes a cache disk module for caching, and is connected to a storage device and a client device via a network, the computer program when executed causes the node device to perform the functions of:

obtaining attribute data related with data processed by the client device, wherein the attribute data configures, a caching operation of the cache disk module that caches the processed data on the network; and

mediating the processed data between the storage device and the client device via the network without the caching operation of the cache disk module when the attribute data prohibits the caching operation~~device for cache and relays data between a storage device and clients, the computer program causing the node device to attain the functions of:~~

~~means for inputting attribute information indicating as to whether or not the data to be relayed is cacheable;~~

~~means for judging as to whether or not the data is cacheable, based on the attribute information; and~~

~~means for relaying the data, which has been judged as non-cacheable, without process of the cache in the disk device.~~